

13 Feb 1969: A4G N-13 154908 – Side No. 887

Radar display detached during the very first A4G catapult launch from HMAS Melbourne. Cause: Design Fault for securing the radar.

During this launch the radar panel with its long body extending back into the instrument panel (being not properly secured) came out into the pilot's lap. Unable to eject (because of the large size of the panel body - length and weight) LCDR Da Costa skilfully flew the aircraft with its trim buttons and limited control stick movement to an emergency straight in landing back at NAS Nowra. Being able to survive such a drastic mishap enabled many previously unexplained USN catapult launch fatal accidents to be solved. Thereafter the radar screen in all A4s was secured by a very large extra fittings, especially whilst at sea.

LCDR Da Costa was the CO of VC-724 at this time but took the first catapult after HMAS Melbourne's long refit, as he was one of the most experienced RAN Skyhawk pilots, having trained in the USN with LCDR Dusty King earlier.



87

NAVY



887

RESCUE



story about Radar-scope falling into above A4G pilot's lap during 1st catapult next pages



Webinars Simulator

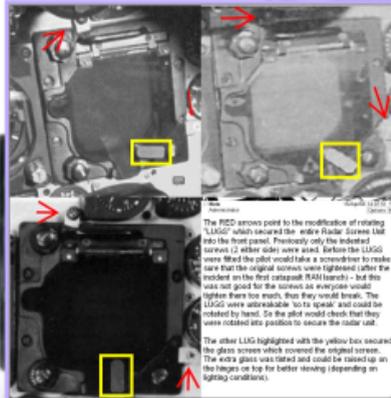
A4G switch simulator

See Next Page for a zoom view

Extra Lugs to secure Radar for Catapult Launch in RAN

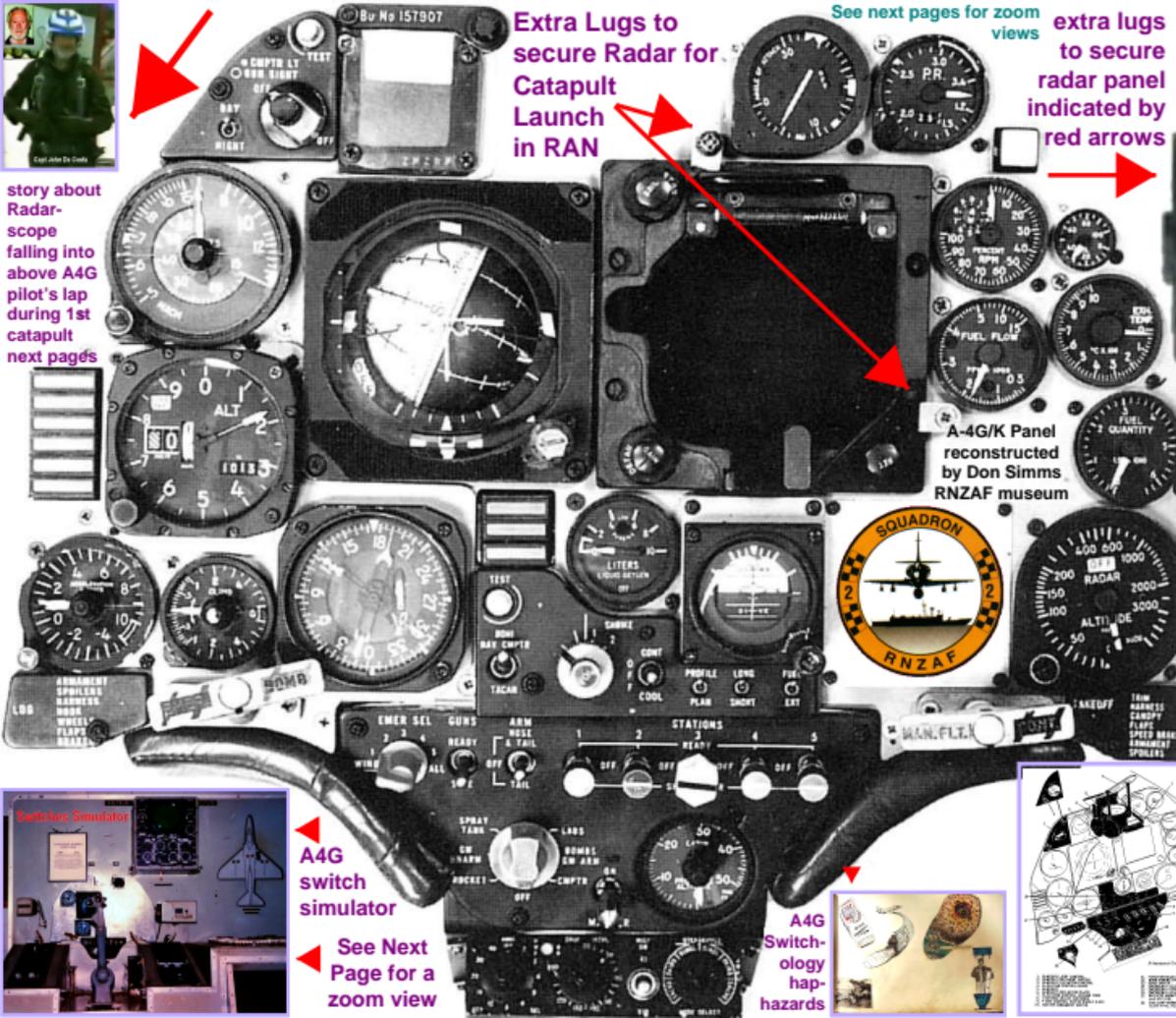
See next pages for zoom views

extra lugs to secure radar panel indicated by red arrows



The RED arrows point to the modification of retaining "LUGS" which secured the entire Radar Screen Unit to the front panel. Previously only the indicated screens (2 other sides) were used. Before the LUGS were fitted the pilot would fit a screwdriver to make sure that the original screws were tightened (after the problem on the first catapult RAN launch - but this was not good for the screen as any pressure would tighten them too much, thus they would break). The LUGS were adjustable, to be square, and could be rotated by hand. So the pilot would check that they were rotated into place to secure the radar unit.

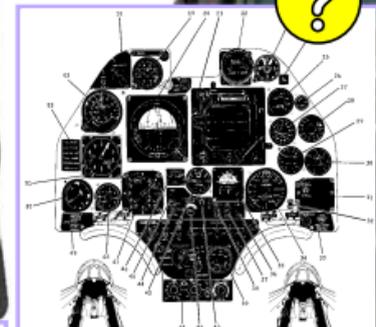
The other LUGS highlighted with the yellow box secured the glass screen which covered the original screen. The extra glass was tinted and could be raised up on the hinges or tie for better viewing (depending on lighting conditions).



A-4G/K Panel reconstructed by Don Simms RNZAF museum



CLICK ?



A-4G Cockpit - Typical Instrument Panel

- 10. LUMINOUS PANEL
- 11. ACCELEROMETER
- 12. ALL-ATTITUDE INDICATOR
- 13. ANOVS SCOPE
- 14. LAMB THERM (INDEPENDANT)
- 15. G-OFF SLITCH
- 16. OIL QUANTITY INDICATOR SWITCH
- 17. PRESSURE RATIO INDICATOR
- 18. OIL PRESSURE INDICATOR
- 19. INCHMETER
- 20. SCHEDULED GAS TEMPERATURE INDICATOR
- 21. FUEL FLOW INDICATOR
- 22. FUEL QUANTITY INDICATOR
- 23. A-400 BYPASS SWITCH (PANEL 1)
- 24. RADAR ALTIMETER COM LIGHT (WARNING LIGHT)
- 25. RADAR ALTIMETER (1)
- 26. RADAR ALTIMETER (2)
- 27. SQUADRON
- 28. FUEL IN-EXT SWITCH
- 29. ANOVS LOW-SHAFT SWITCH
- 30. ANOVS PUSHER-PLATE SWITCH
- 31. ANOVS SCOPE
- 32. ANOVS COOLING SWITCH
- 33. ANOVS COOLING CONTROL
- 34. ANOVS IN-EXT NEAR-POLE RELEASE SYSTEM
- 35. ANOVS DOOR & VALVE INDICATOR
- 36. ANOVS COMPASS, TACHO, MAPING SWITCH
- 37. TEST SWITCH (MAINT & PRESS TO TEST)
- 38. ANOVS LIGHTS (2)
- 39. ANOVS SWITCH
- 40. CAUTION PANEL (LAMP LIGHTS)
- 41. ANOVS SWITCH
- 42. ANOVS COOLING CONTROL
- 43. ANOVS IN-EXT NEAR-POLE RELEASE SYSTEM
- 44. ANOVS DOOR & VALVE INDICATOR
- 45. ANOVS COMPASS, TACHO, MAPING SWITCH
- 46. ANOVS LIGHTS (2)
- 47. ANOVS SWITCH
- 48. CAUTION PANEL (LAMP LIGHTS)
- 49. ANOVS SWITCH

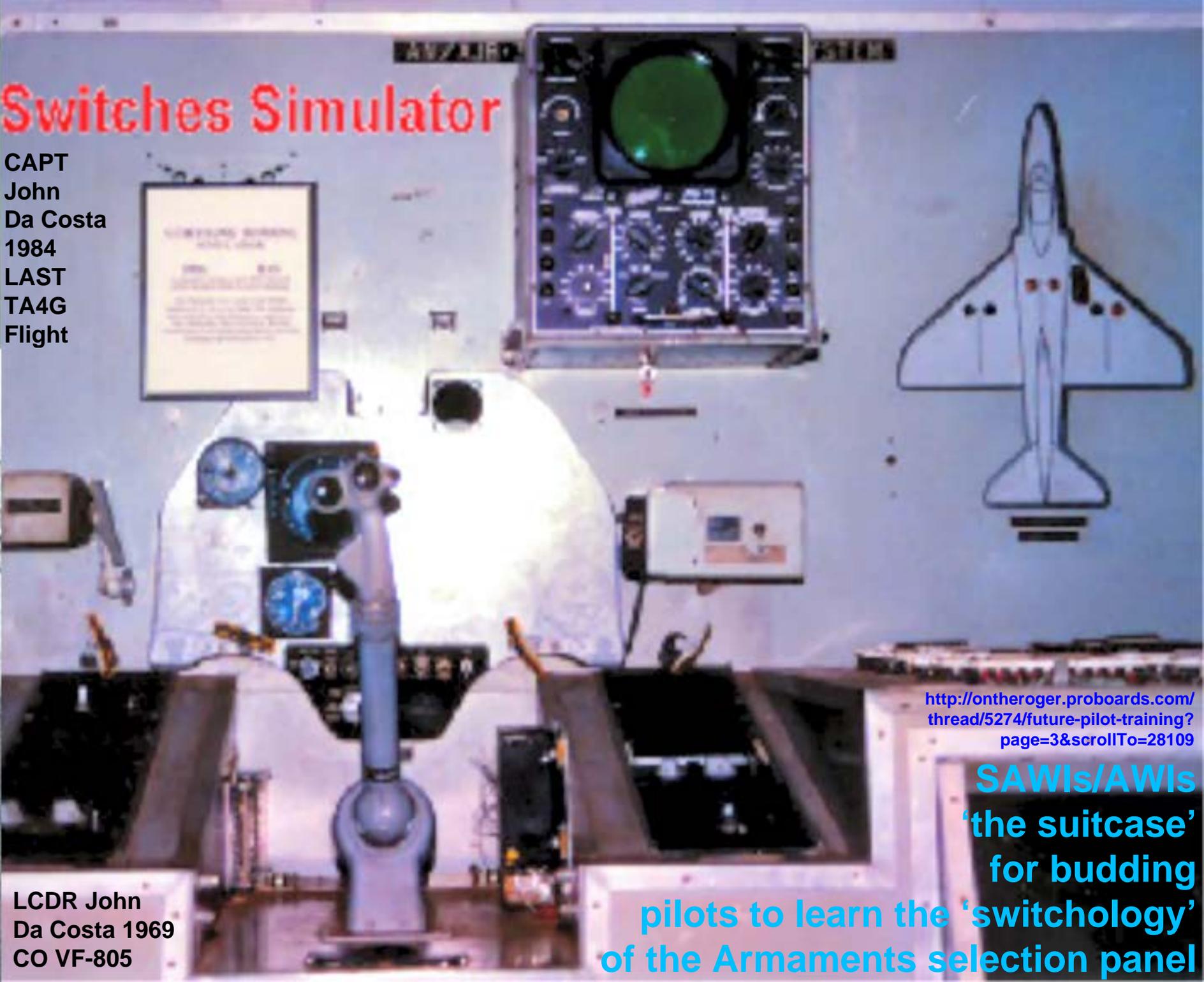


A4G Switchology hazards



Switches Simulator

CAPT
John
Da Costa
1984
LAST
TA4G
Flight



<http://ontheroger.proboards.com/thread/5274/future-pilot-training?page=3&scrollTo=28109>

SAWIs/AWIs
'the suitcase'
for budding

pilots to learn the 'switchology'
of the Armaments selection panel

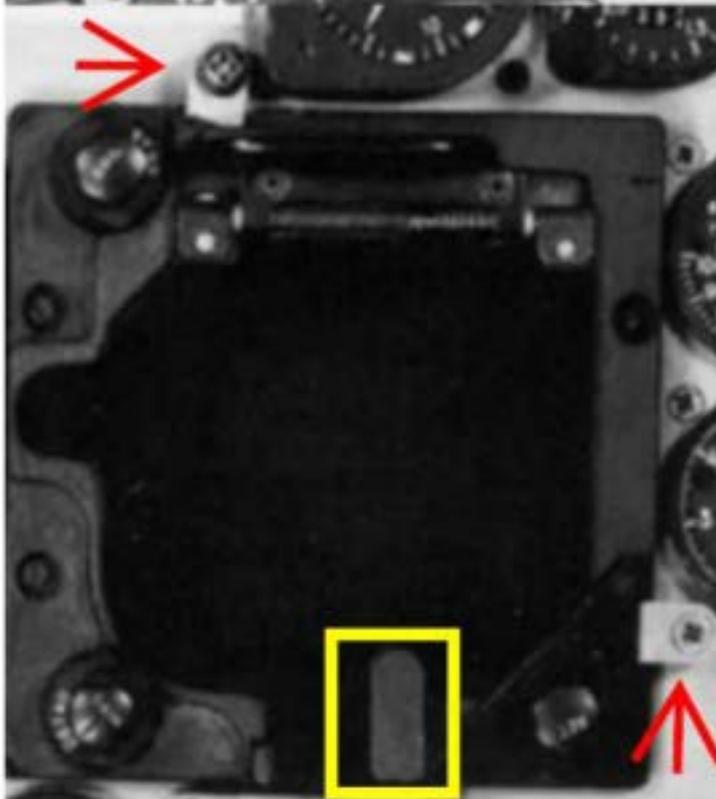
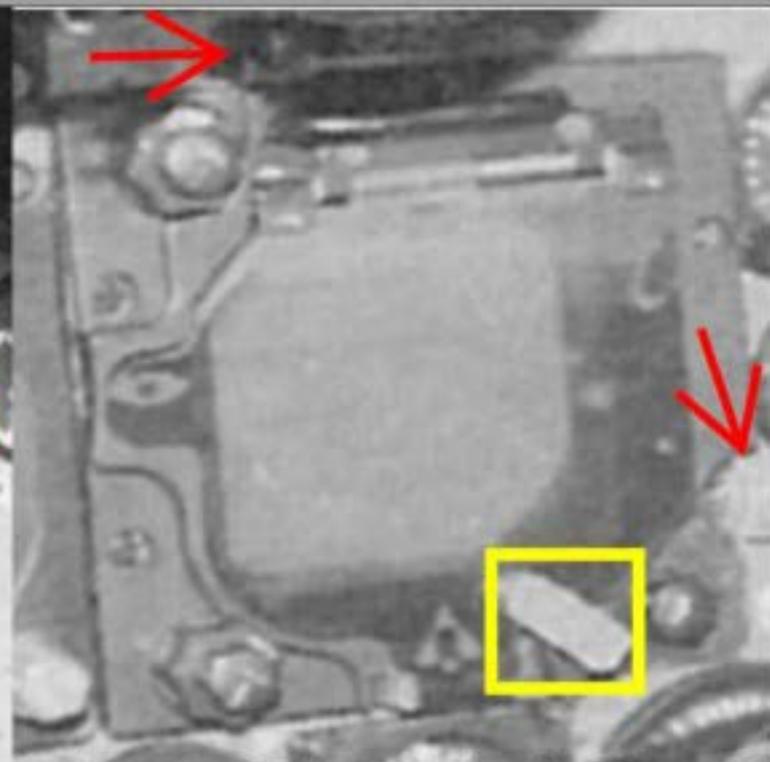
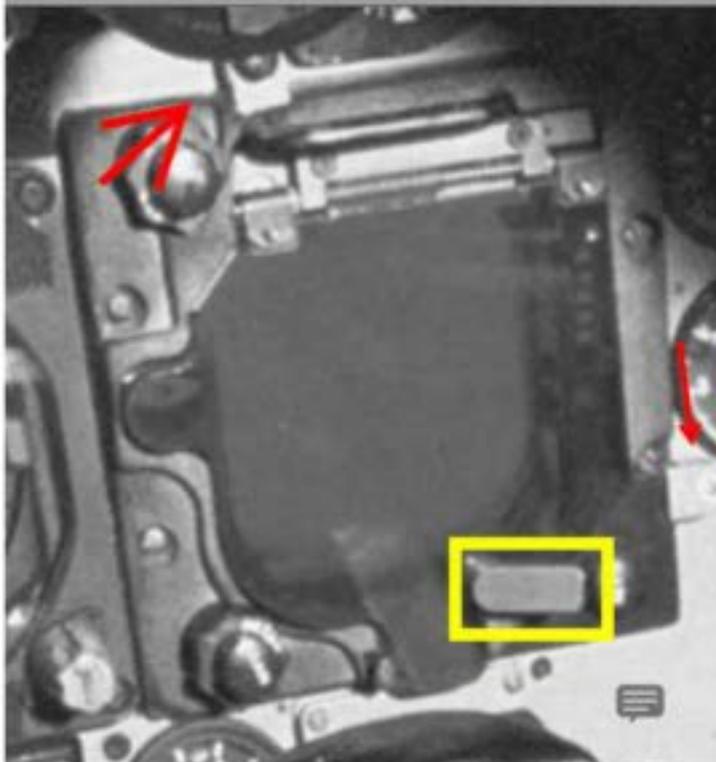
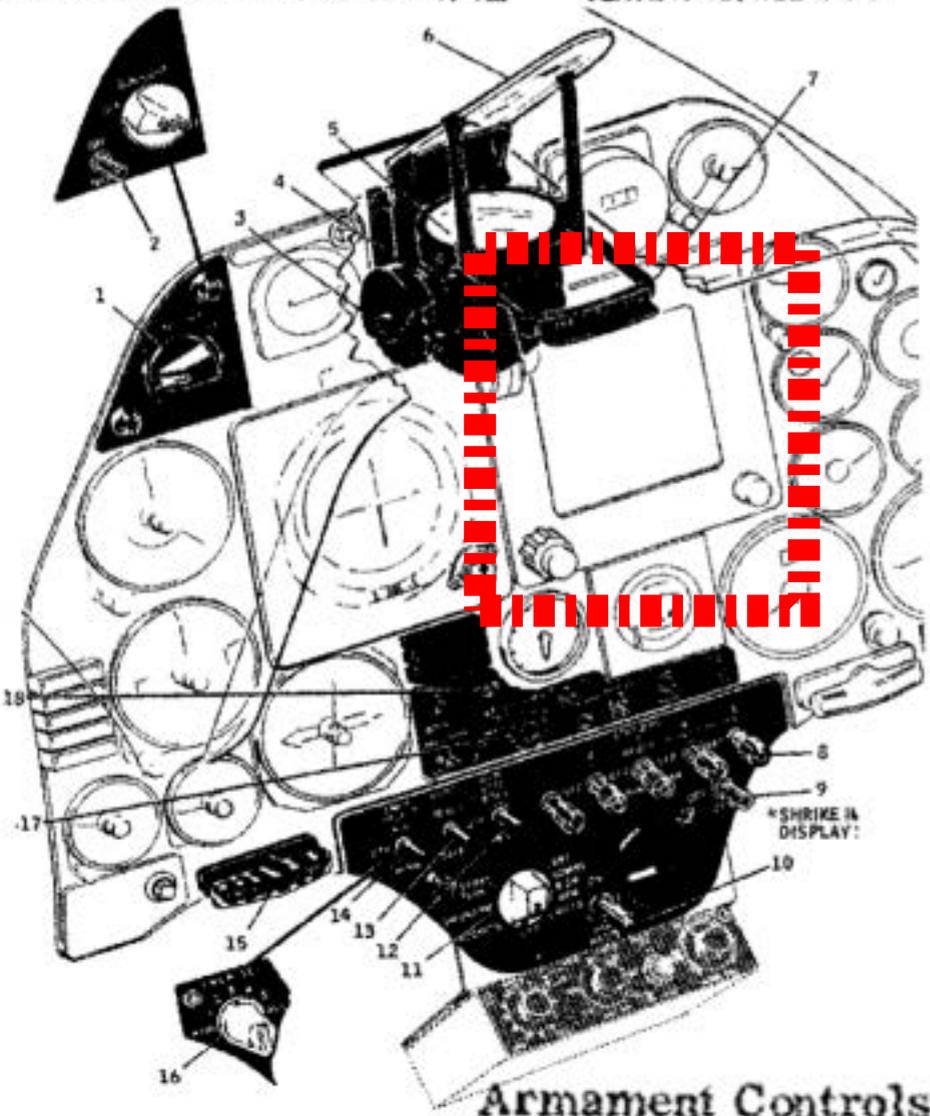
LCDR John
Da Costa 1969
CO VF-805

Click Screen for a short video clip showing the outcome of jammed controls (to left) caused by radar unit dislodging?



THE BIG LUG FIX

- | | |
|-----------------------------------|--|
| 1. GUNSIGHT LIGHT CONTROL | 11. FUNCTION SELECTOR SWITCH |
| 2. GUNSIGHT DAY-NIGHT SWITCH | 12. BOMB ARMING SWITCH |
| 3. GUNSIGHT ELEVATION CONTROL | 13. GUNS SWITCH |
| 4. ELEVATION CONTROL GUARD | 14. EMERGENCY SELECTOR SWITCH |
| 5. GUNSIGHT | 15. EMERGENCY STORES RELEASE |
| 6. GUNSIGHT REFLECTOR PLATE | 16. EMERGENCY SELECTOR SWITCH (A-4 AFC 318) |
| 7. ELEVATION CONTROL LOCKING YOKE | 17. WALLEYE NORM TEST SWITCH |
| 8. STATIONS SELECT SWITCHES | 18. SIDS CONT-NORM MODE SWITCH (LATE A-4E, ALL A-4F) |
| 9. * SIDS CONTROL SWITCH (EARLY) | |
| 10. MASTER ARMAMENT SWITCH (A-4E) | |

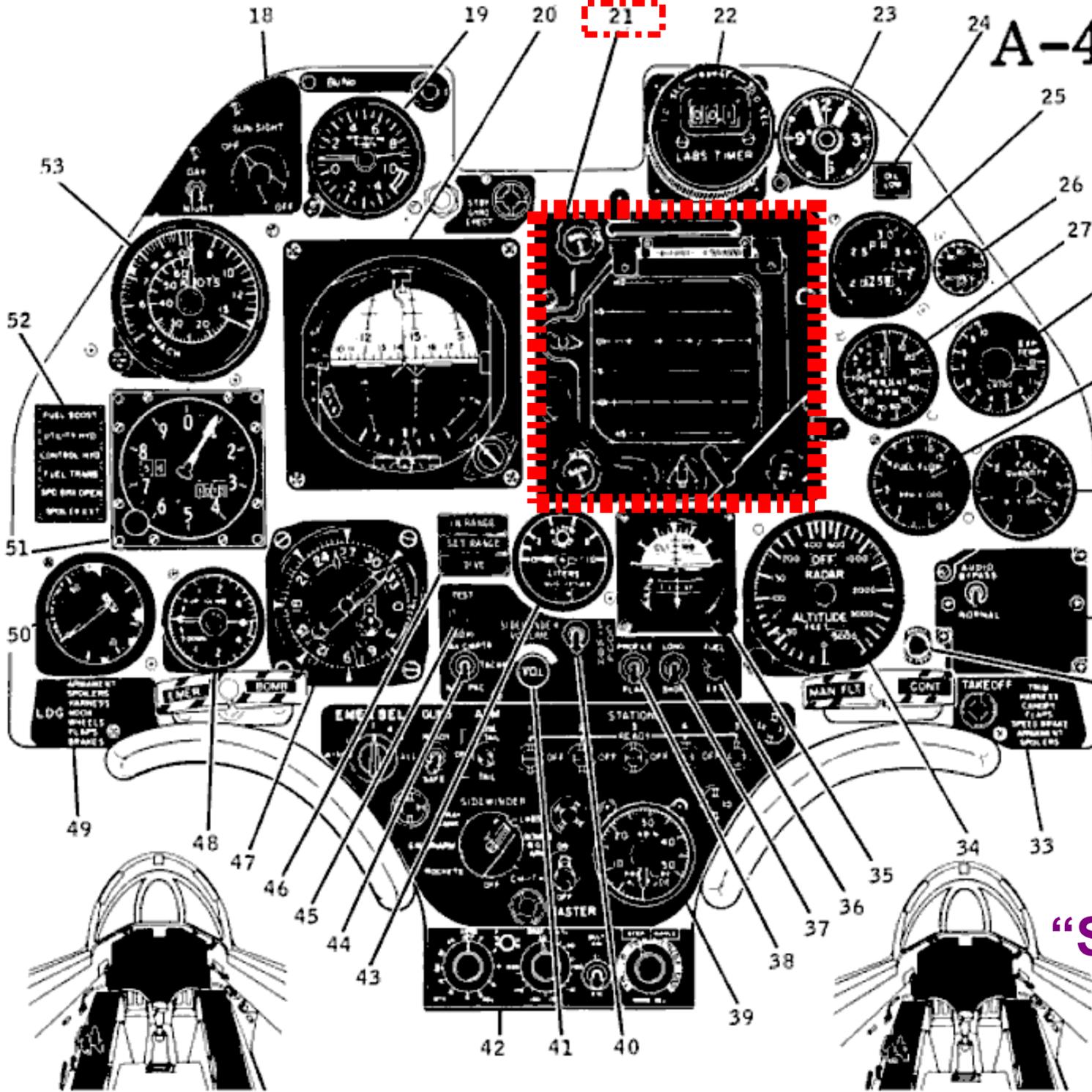


Note Administrator 15/Apr/06 14:07:51 Options

The RED arrows point to the modification of rotating "LUGS" which secured the entire Radar Screen Unit into the front panel. Previously only the indented screws (2 either side) were used. Before the LUGS were fitted the pilot would take a screwdriver to make sure that the original screws were tightened (after the incident on the first catapult RAN launch) - but this was not good for the screws as everyone would tighten them too much, thus they would break. The LUGS were unbreakable 'so to speak' and could be rotated by hand. So the pilot would check that they were rotated into position to secure the radar unit.

The other LUG highlighted with the yellow box secured the glass screen which covered the original screen. The extra glass was tinted and could be raised up on the hinges on top for better viewing (depending on lighting conditions).

A-4G Cockpit – Typical Instrument Panel



- 18. GUNSIGHT PANEL
- 19. ACCELEROMETER
- 20. ALL-ATTITUDE INDICATOR
- 21. RADAR SCOPE
- 22. LABS TIMER (INOPERATIVE)
- 23. 8-DAY CLOCK
- 24. OIL QUANTITY INDICATOR/SWITCH
- 25. PRESSURE RATIO INDICATOR
- 26. OIL PRESSURE INDICATOR
- 27. TACHOMETER INDICATOR
- 28. EXHAUST GAS TEMPERATURE
- 29. FUEL FLOW INDICATOR
- 30. FUEL QUANTITY INDICATOR
- 31. AUDIO BYPASS SWITCH PANEL (1)
- 32. RADAR ALTIMETER LOW LIMIT
- 33. TAKEOFF CHECKLIST WARNING LIGHT
- 34. RADAR ALTIMETER (1)
- 35. STANDBY ATTITUDE INDICATOR
- 36. FUEL INT-EXT SWITCH
- 37. RADAR LONG-SHORT SWITCH
- 38. RADAR PROFILE-PLAN SWITCH
- 39. ARMAMENT CONTROL PANEL
- 40. SIDEWINDER COOLING SWITCH
- 41. SIDEWINDER VOLUME CONTROL
- 42. AWE-1 AIRCRAFT WEAPONS RELEASE
- 43. LIQUID OXYGEN QUANTITY INDICATOR
- 44. BDHI NAV COMPUTER, TACAN, NAVPAC SWITCH
- 45. TEST SWITCH (MASTER PRESS TO TEST)
- 46. PILOT ADVISORY LIGHTS (2)
- 47. BEARING-DISTANCE-HEADING INDICATOR (BDHI)
- 48. VERTICAL VELOCITY INDICATOR
- 49. LANDING CHECKLIST
- 50. ANGLE-OF-ATTACK INDICATOR
- 51. ALTIMETER
- 52. CAUTION PANEL (LADDER LIGHTS)
- 53. AIRSPEED INDICATOR

“Scariest cat launch I recall was John Da Costa's & the first A4 launch from Melbourne early 1969. They wound the cat up to full volume & let her rip. The A4 almost stood on its tail, went straight over the front end & disappeared from sight!!!!!!!

After a few seconds it slowly appeared literally bouncing off the waves & sending the spray back over the flight deck!!!!!! John slowly but painfully got it up off the floor & headed back to Nowra. Upon managing a safe trip home he taxied up to the line shack, shut down & beckoned Ken Pryor aka ‘Uckers’, line radio man at the time to come hither. As ‘Uckers’ climbed the ladder John opened the canopy & handed him the Radar indicator. What had happened was the A4G pulled close to 9Gs off the cat & the indicator popped out of the instrument panel & landed somewhere between the joy stick & his feet. It is tribute to the man that he piloted the bird to safety. [The events back at Nowra were recalled later at the big Naval enquiry which ‘moi’, as the duty radmech onboard was requested to attend with ‘caps off’.] All was forgiven however. The indicator, as were a lot of the instruments held in place by a pressure band. As a result the radar ind. became secured by lugs at the top & side.” E-mail - Peter Barnes, 11 June 2011

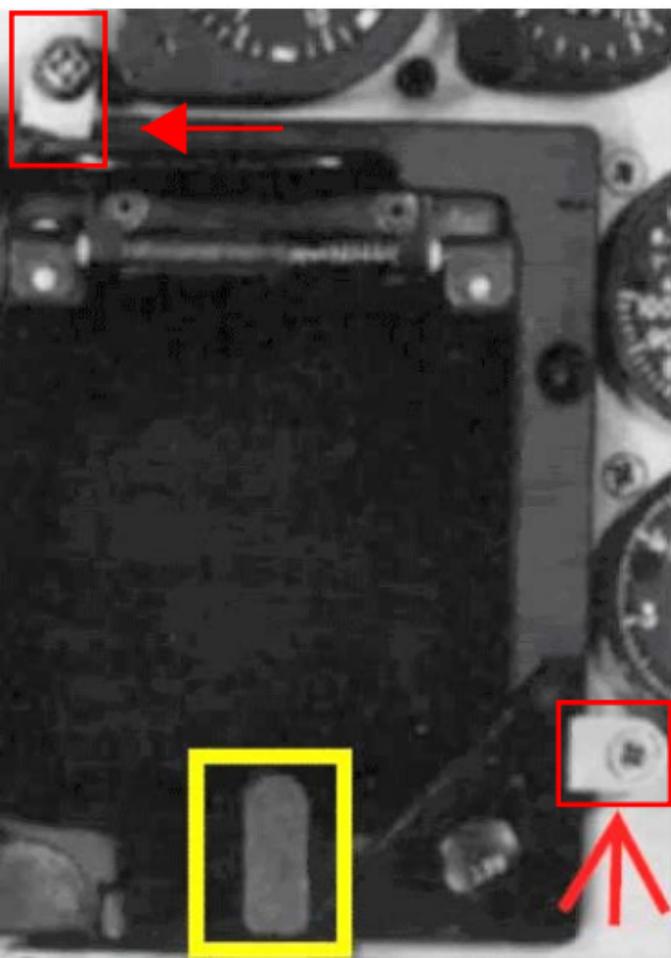
How Radar Unit Secured Afterwards

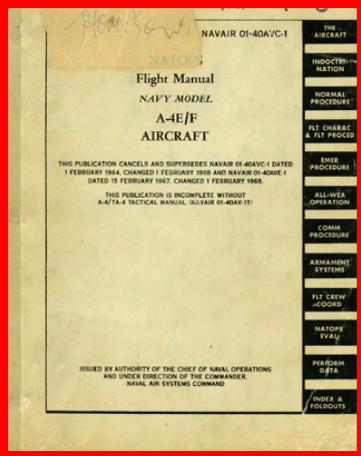
AN/APG-53A radar unit modification

The RED arrows point to the modification of rotating "LUGS" which secured the entire Radar Screen Unit into the front panel. Previously only the indented screws (2 either side) were used. Before the LUGS were fitted the pilot would take a screwdriver to make sure that the original screws were tightened (after the incident on the first catapult RAN launch) - but this was not good for the screws as everyone would tighten them too much, thus they would break. The LUGS were unbreakable 'so to speak' and could be rotated by hand. So the pilot would check that they were rotated into position to secure the radar unit.

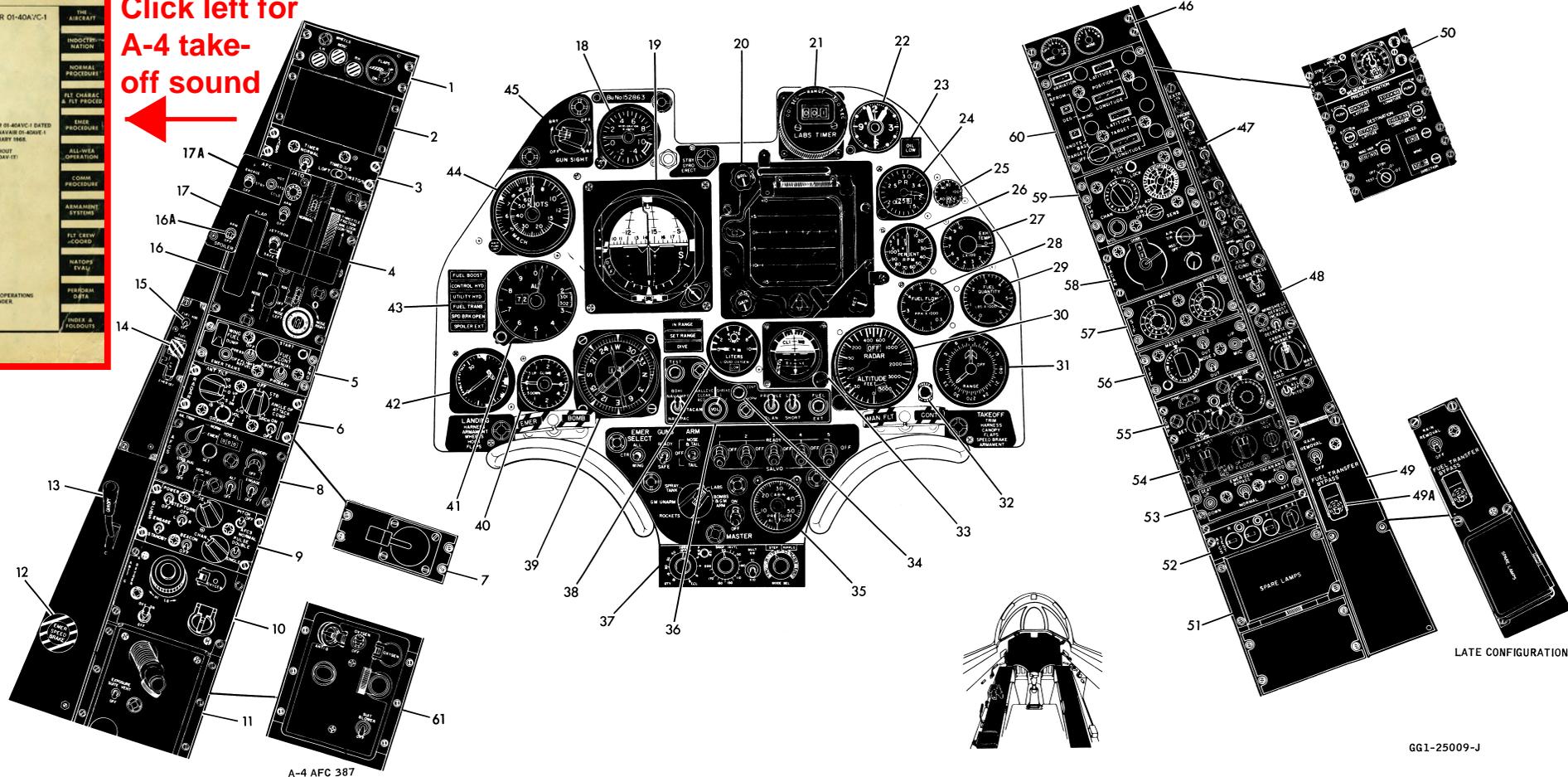
The other LUG highlighted with the yellow box secured the glass screen which covered the original screen. The extra glass was tinted and could be raised up on the hinges on top for better viewing (depending on lighting conditions).

to prevent dislodging during catapulting





Click left for
A-4 take-off sound



A-4 AFC 387

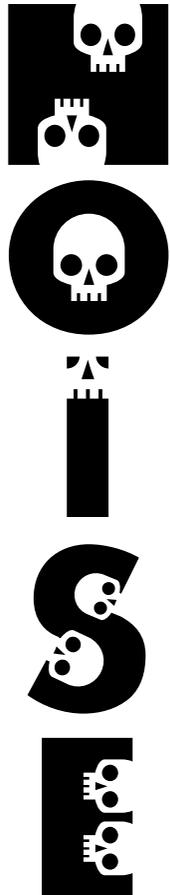
LATE CONFIGURATION

1. WHEELS AND FLAPS PANEL
2. BLANK PANELS (NOT REWORKED PER A-4 AFC 376)
WEAPON CONTROL PANEL (REWORKED PER A-4 AFC 376)
3. LABS CONTROL PANEL (NOT REWORKED PER A-4 AFC 376)
BLANK PANEL (REWORKED PER A-4 AFC 376)
4. THROTTLE PANEL
5. ENGINE CONTROL PANEL
6. RADAR CONTROL PANEL (NOT REWORKED PER A-4 AFC 256
OR REWORKED PER A-4 AFC 387)
7. ARN-77 CONTROL SELECTOR (REWORKED PER A-4 AFC 256)
8. AFCS PANEL
9. GCBS PANEL
10. OXYGEN AND ANTI-G PANEL
11. ANTIEXPOSURE SUIT CONTROL PANEL
12. EMERGENCY SPEEDBRAKE CONTROL
13. CANOPY CONTROL HANDLE
14. MANUAL FUEL SHUTOFF CONTROL LEVER
15. SMOKE ABATEMENT SWITCH

16. FLAP HANDLE
- 16A. SPOILER ARM SWITCH
17. JATO CONTROL PANEL
- 17A. APPROACH POWER COMPENSATOR CONTROL PANEL
18. ACCELEROMETER
19. ALL-ATTITUDE INDICATOR
20. RADAR SCOPE
21. LABS TIMER
22. 8-DAY CLOCK
23. OIL QUANTITY INDICATOR SWITCH (LATE A-4E)
24. PRESSURE RATIO INDICATOR
25. OIL PRESSURE INDICATOR
26. TACHOMETER
27. EXHAUST GAS TEMPERATURE INDICATOR
28. FUEL FLOW INDICATOR
29. FUEL QUANTITY INDICATOR
30. RADAR ALTIMETER
31. DEAD RECKONING INDICATOR (EARLY A-4E)

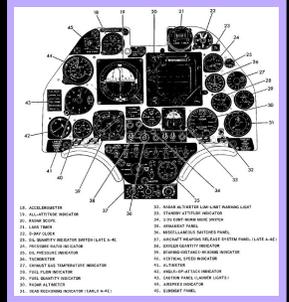
32. RADAR ALTIMETER LOW-LIMIT WARNING LIGHT
33. STANDBY ATTITUDE INDICATOR
34. SIDS CONT-NORM MODE SWITCH
35. ARMAMENT PANEL
36. MISCELLANEOUS SWITCHES PANEL
37. AIRCRAFT WEAPONS RELEASE SYSTEM PANEL (LATE A-4E)
38. OXYGEN QUANTITY INDICATOR
39. BEARING-DISTANCE-HEADING INDICATOR
40. VERTICAL SPEED INDICATOR
41. ALTIMETER
42. ANGLE-OF-ATTACK INDICATOR
43. CAUTION PANEL (LADDER LIGHTS)
44. AIRSPEED INDICATOR
45. GUNSIGHT PANEL
46. TRIM POSITION INDICATOR PANEL
47. EXTERIOR LIGHTS PANEL
48. AIR CONDITIONING PANEL
49. RAIN REMOVAL PANEL

- 49A. FUEL TRANSFER BYPASS SWITCH
50. DOPPLER NAVIGATIONAL COMPUTER (ASN-41) (LATE A-4E)
51. SPARE LAMPS CONTAINER (NOT REWORKED PER A-4 AFC 256)
AFCS TEST SWITCH PANEL (REWORKED PER A-4 AFC 256)
52. AFCS TEST SWITCH PANEL (NOT REWORKED PER AFC 256)
COMPASS CONTROL PANEL (REWORKED PER A-4 AFC 256)
53. MISCELLANEOUS SWITCHES PANEL
54. INTERIOR LIGHTS PANEL (REWORKED PER A-4 AFC 428)
55. COMPASS CONTROL PANEL (NOT REWORKED PER A-4 AFC 256)
IFF CONTROL PANEL (REWORKED PER A-4 AFC 256)
56. IFF CONTROL PANEL (NOT REWORKED PER A-4 AFC 256)
RADAR CONTROL PANEL (REWORKED PER A-4 AFC 256)
AN/APR-25 (V) CONTROL PANEL (REWORKED PER A-4
AFC 394)
57. SIF CONTROL PANEL
58. TACAN CONTROL PANEL
59. UHF CONTROL PANEL
60. NAV CONTROL PANEL (ASN-19, EARLY A-4E)
61. OXYGEN, ANTI-G, AND ANTIEXPOSURE SUIT CONTROL
PANEL (REWORKED PER A-4 AFC 387)

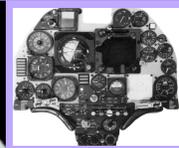


A-4G/K

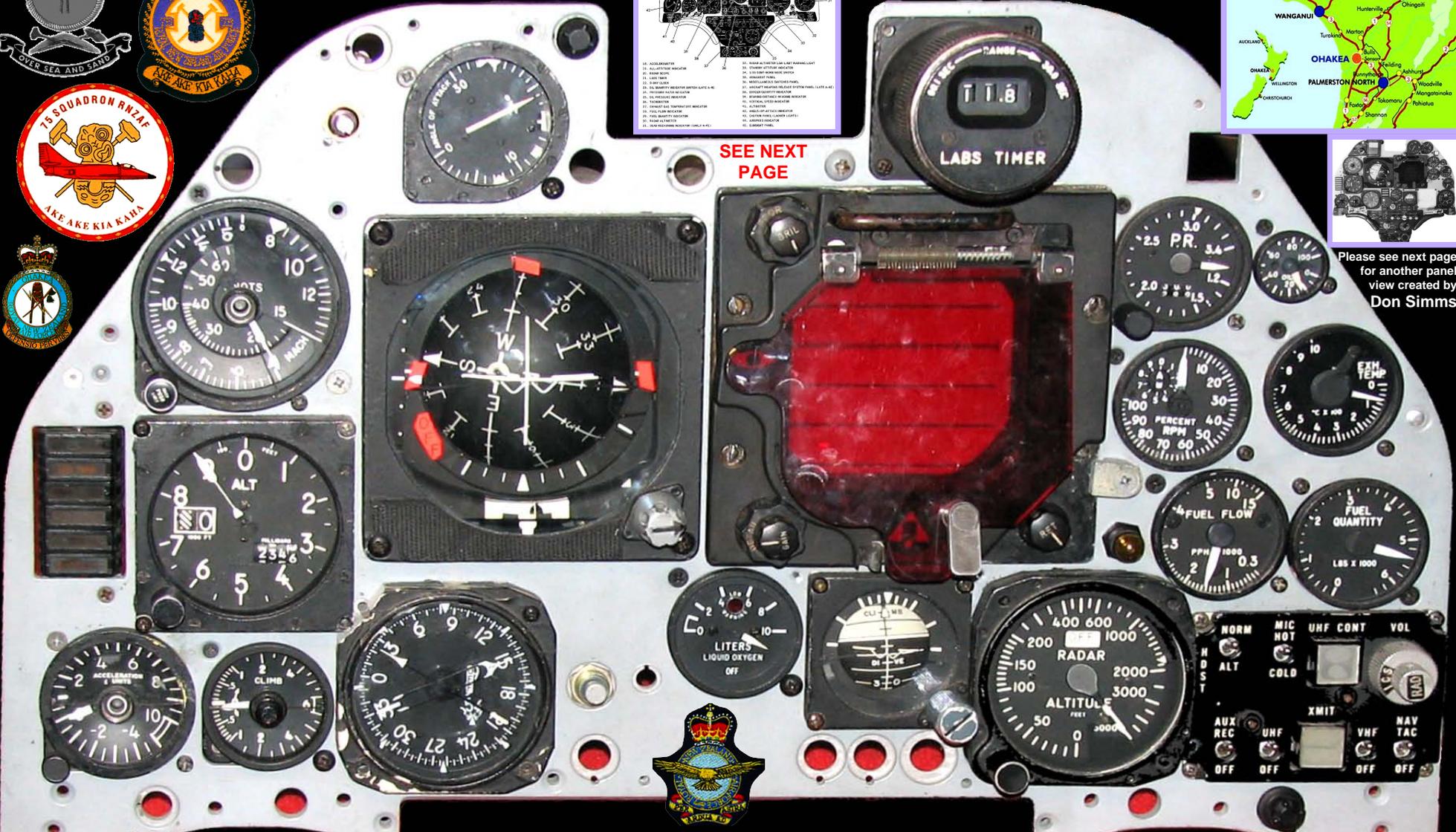
Front Panel



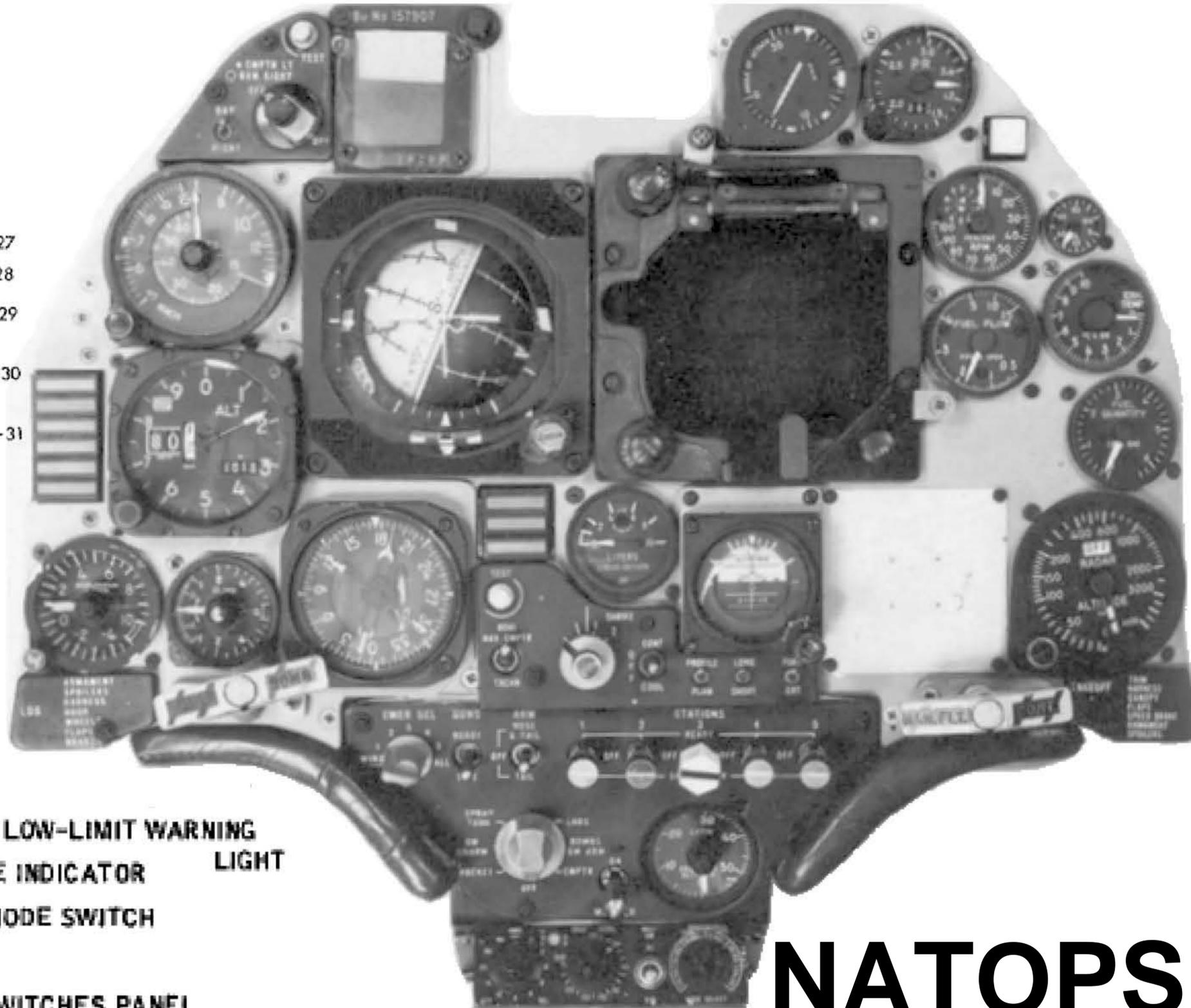
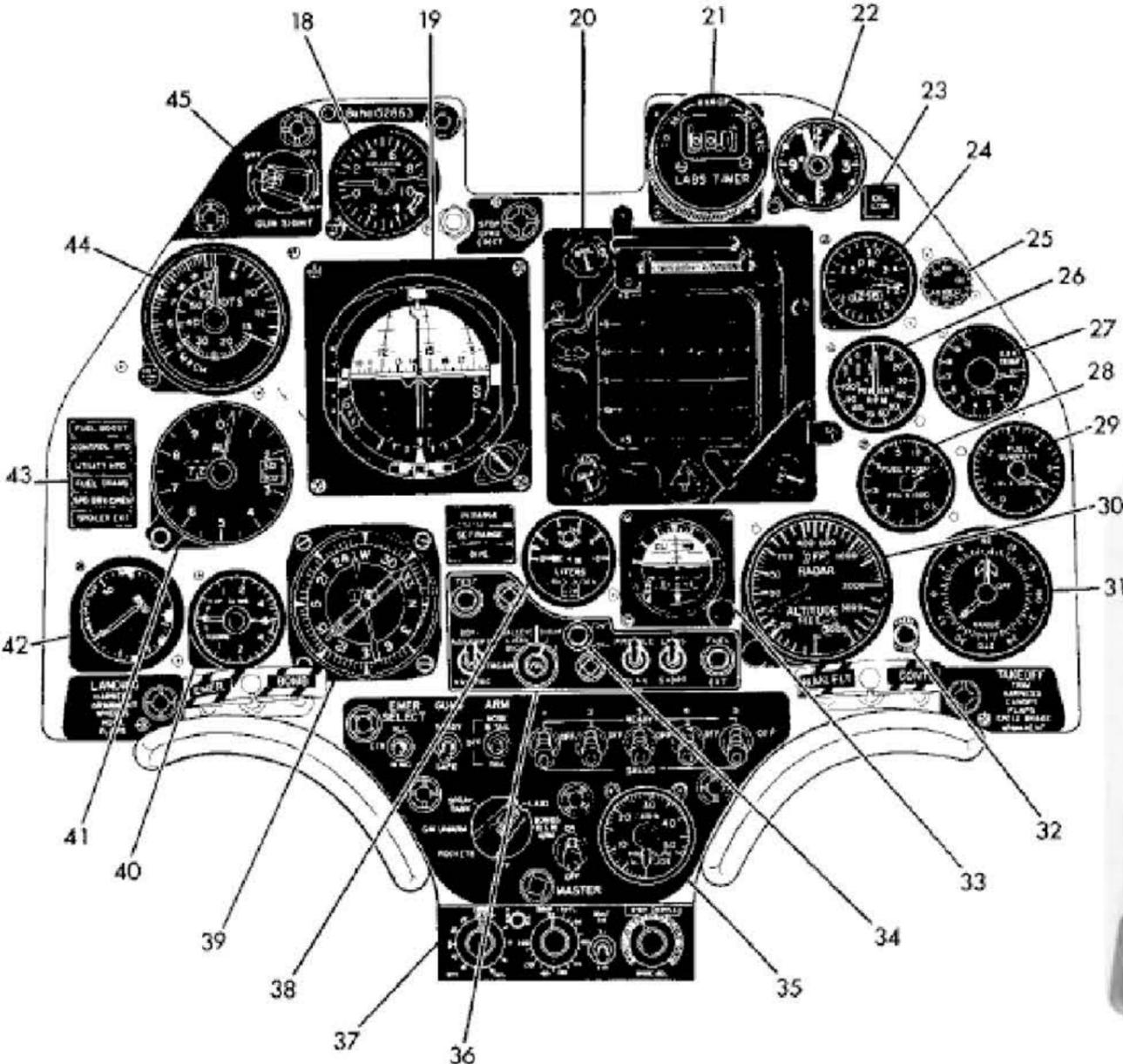
SEE NEXT PAGE



Please see next page for another panel view created by Don Simms



Original A-4K(G) panel displayed at the RNZAF Ohakea Museum — photo from Craig Brankin



- 18. ACCELEROMETER
- 19. ALL-ATTITUDE INDICATOR
- 20. RADAR SCOPE
- 21. LABS TIMER
- 22. 8-DAY CLOCK
- 23. OIL QUANTITY INDICATOR SWITCH (LATE A-4E)
- 24. PRESSURE RATIO INDICATOR
- 25. OIL PRESSURE INDICATOR
- 26. TACHOMETER INDICATOR
- 27. EXHAUST GAS TEMPERATURE INDICATOR
- 28. FUEL FLOW INDICATOR
- 32. RADAR ALTIMETER LOW-LIMIT WARNING LIGHT
- 33. STANDBY ATTITUDE INDICATOR
- 34. SIDS CONT-NORM MODE SWITCH
- 35. ARMAMENT PANEL
- 36. MISCELLANEOUS SWITCHES PANEL
- 37. AIRCRAFT WEAPONS RELEASE SYSTEM PANEL
- 38. OXYGEN QUANTITY INDICATOR (LATE A-4E)
- 39. BEARING-DISTANCE-HEADING INDICATOR
- 40. VERTICAL SPEED INDICATOR
- 41. ALTIMETER
- 42. ANGLE-OF-ATTACK INDICATOR

- 29. FUEL QUANTITY INDICATOR
- 30. RADAR ALTIMETER (EARLY A-4E)
- 31. DEAD RECKONING INDICATOR
- 43. CAUTION PANEL (LADDER LIGHTS)
- 44. AIRSPEED INDICATOR
- 45. GUNSIGHT PANEL

NATOPS A4G Front Panel

Original A4G BuNo. 154908 **887**; ex NZ6214 A-4K KAHU **now** N144EM

